

R E M A R K S

Claims 13 and 14 currently remain in the application. Claims 1-12 and 15-18 have been canceled and no claims are herein amended.

Claims 13 and 14 were rejected under 35 U.S.C. 103 over Cowman in view of Matsuoka and Matsuo. Applicant believes, however, these references do not properly support the Examiner's rejection for the following reasons.

Firstly, applicant summarizes the main distinguishing characteristics of the present invention as follows:

- (1) The thermistor element is obtained by using a thermistor element having principal component oxides containing two or more metals selected from the group consisting of Mn, Ni, Co, Fe, Cu and Al and having a specific resistance lower than $200\Omega \cdot \text{cm}$;
- (2) The layer with high specific resistance is obtained from a material having as principal component one or more oxides containing two or more metals selected from the group consisting of Mn, Ni, Co, Fe, Cu and Al and having also least one metal selected from the group consisting of Zn, Al, W, Zr, Sb, Y, Sm, Ti and Fe; and
- (3) The ceramic thermistor element and this layer with high specific resistance are baked together.

Cowman discloses forming a high resistance layer by using the same material, Matsuoka discloses forming an outer electrode by electrolysis, and Matsuo discloses adding Zr and Fe to Mn and Ni as material for thermistor element. Matsuo, on the other hand, merely discloses using a thermistor material such as Mn and Ni as thermistor element, while saying nothing about forming a high resistance layer for a thermistor element. Although the materials to serve as principal component are the same for both the thermistor element and the high resistance layer, there is no teaching of using any additive to the material for the thermistor element so as to form a high resistance layer having resistance adjusted to be higher than that of the thermistor element.

The Examiner points out that since Cowman discloses the element and the high resistance layer formed of the same material, it is obvious to use this idea to Matsuo. The Examiner is requested, however, to reconsider Cowman's alleged disclosure of a high resistance layer. The Examiner's comment on Cowman regarding this aspect of the invention

starts in page 4 at line 10 of the Official Letter, referring to the ceramic layer 21 in Cowman's column 7, lines 15-64. In Column 7, lines 15-30, Cowman refers to the embodiment shown in Fig. 6 and the portion indicated by numeral 21 is simply referred to as "the outer layer 21 of ceramic material of greater thickness than the interelectrode ceramic layers 2". This layer is somewhat later described as being about three times thicker than said interelectrode layers, but there is no mention of its resistance.

The remaining portion of the part referred to by the examiner (column 7, lines 31-65) says nothing of numeral 21. This portion is dedicated to the description of an alternate embodiment (as manifested by the adverb "alternatively" at line 31 of column 7) wherein the outer layer comparable to the outer layer 21 of Fig. 6 is now indicated by another numeral 22, and this outer layer according to Cowman's alternative embodiment is characterized as having an increased resistance but this increase in resistance is brought about by "providing a greatly increased number of grain boundaries" (column 7, lines 38-39).

Cowman's invention relates to varistors, not to thermistors, and this is why it is possible to form a layer with increased resistance by thus providing a greatly increased number of grain boundaries. This cannot be done in the case of a thermistor. In other words, Cowman and the present invention are distinguishable because the high resistance layer according to this invention is formed by adding another component and subjecting them together to a baking process, as presented as an essential inventive element of the claims.

Cowman does disclose the use of "different material" for the outer layers 22 in column 7 at lines 62-64, but this embodiment of Cowman is also distinguishable from the present invention because Cowman is not therein teaching the addition of any different material into the ceramic material and baking them together. As repeatedly explained above, the high-resistance layer of this invention is characterized as essentially being of the same material as the ceramic green sheet but being formed by adding a certain material to it and baking them together, not being of a material that is completely different from the ceramic green sheet. Since the high resistance layer according to this invention is formed by baking together such a material that is a mixture of the same ceramic material and an additive material, it is reliably bonded to the ceramic layer. If an outer layer made of a completely different material were baked together with a ceramic layer, they cannot be as closely and intimately bonded together.

In summary, Cowman does not disclose the kind of high resistance layer described in the claims of this invention. It is therefore believed that the claims now being presented are distinguishable from the teaching of the cited reference and hence that the application is definitely in condition for allowance. Such action at an early date is earnestly solicited.

Respectfully submitted,



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